



Document Number: _____

Environmental Test and Integration

System, Subsystem, or Equipment

Safety Evaluation Form

Project: _____

Subsystem: _____

Test Item: _____

Operation: _____

Note: The initial submission must be presented to the Code 549 Branch Head for review at least one week prior to arrival of hardware at the Environmental Test and Integration Facility. Safety evaluation updates will then occur as required.

I certify that the enclosed information is correct and complete:

Project Manager/Safety Manager: _____ Date: _____

Evaluation Summary

Hazard	Standard Operating Procedures	Hazard Mitigation Required
1. Mechanical Handling		
2. Ordnance		
3. Pressure and Vacuum Systems		
4. Stored Energy Devices		
5. Hazardous Materials & Hazardous Waste		
6. Non-ionizing Radiation Systems		
7. Ionizing Radiation Sources		
8. Electrical Systems & Equipment		
9. Noise		
10. Unique/Experimental Systems		
11. Vacuum Compatible Materials		

Evaluated by: _____ Date: _____

Approved by: _____ Date: _____

Code 549 Section Head

Environmental Test and Integration
System, Subsystem or Equipment
Safety Evaluation Form

The Environmental Test and Integration Branch (Code 549) will use this information to evaluate the safety aspects of your system, subsystem, or equipment and how your hardware interfaces with facility systems. The following checklist must be completed and submitted to the Code 549 Evaluator for review prior to arrival of your equipment at the Environmental Test and Integration Complex (Buildings 7/10/15/29 and the Magnetic Test Site). If other than Standard Operating Procedures are required to control a hazard, then a Hazard Mitigation Plan must be submitted to the Code 549 Branch Head and Safety Office for approval. All residual hazards must be mitigated prior to testing. Procedures must be submitted for all hazardous operations and approved by Code 549 prior to the start of the operation.

Please answer yes or no to the following statements. The status column is to be used for approval, references, or certification dates. Shaded boxes indicated areas where resolution may be necessary.

1. Mechanical Handling

Yes No Status

Are crane or forklift or personnel lift operations required?

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If no, proceed to #2.

- a. Will personnel be required to be underneath a crane-suspended load? (If yes a waiver is required.)
- b. Have stress and stability analyses been performed? Attach report.
- c. Are slings tagged indicating the equipment identifier, safe working load, test load, and due date of recertification?
- d. Have lifting slings/devices been tested/certified to NPG 8619.9? Attach test report.
- e. If components can be disassembled, have they been serialized, color coded, or equivalently identified, to ensure components have not been replaced or the configuration changed?
- f. Have your critical welds, hoist rings, eyebolts, and hooks been nondestructive tested (if the weld is removed, the sling will fail)? Attach NDI reports, along with NDI inspector's certification.
- g. Has your handling dollie been proof tested? Attach report.
- h. Have your jacks used for critical loads been annually load tested?

Comments/additional information: _____

2. Ordnance

Yes No Status

Does the system, subsystem, or equipment have or will have ordnance (electro-explosive devices, pyrotechnics, Pyrophorics, etc.) installed?

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If no, proceed to #3.

- a. Will ordnance be installed or fired in the MSC facilities? Indicate the DOT class of ordnance.

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Comments/additional information: _____

Note: Prior to ordnance arrival on the Center, GSFC Safety and Environmental Branch must be notified as to the class and quantity of all ordnance. Ordnance must not be stored in MSC facilities without prior approval of GSFC Safety and Environmental Branch.

3. Pressure & Vacuum Systems

Yes No Status

Are there systems/components, which are or will be pressurized (flight/ground)?

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If no, proceed to #4.

- a. Are proof pressurization tests planned for the MSC facilities?
b. Do the systems have a safe factor of less than 4 to 1?

Procedures are required for all pressure testing.

Comments/additional information: _____

4. Stored Energy Devices

Yes No Status

- a. Are there batteries?
b. Do systems have stored energy (springs, booms, etc.)?
c. Are there non-solid state gyros?
d. Will there be solar array or other deployments?
e. Will reaction wheels be operated?
f. Are there kinetic or rotational systems?
g. Are there pyrophoric devices?

Comments/additional information: _____

5. Hazardous Materials & Hazardous Waste

Yes No Status

Are there hazardous materials (fluids or solids that may harm individuals or the environment) used on/in the system/subsystem/equipment?				
a.	Are any of the following hazardous materials used? Check each applicable box: Flammable/Combustible Toxic Corrosive Reactive Cryogenic Explosive Oxidizer Health hazards			
b.	Will personnel be entering confined spaces, which contain purges or other types of hazardous materials?			
c.	Are there systems that could present temperature extremes (hot or cold hazards)?			
d.	Are there materials, which may pose outgasing or air contamination hazards to personnel, facilities, or other projects?			

Attach copies of Material Safety Data Sheets for all hazardous materials.

Comments/additional information: _____

6. Non-Ionizing Radiation Systems

Yes No Status

(Electromagnetic energy emitting systems: RF, lasers, ultraviolet radiation, microwaves, etc.)

Do you have non-ionizing radiation sources?				
If no, proceed to #7.				
a.	Will RF systems radiate into free space?			
b.	Will non-dummy-load-terminated emitting sources in excess of 100-mw be activated outside of a shielded enclosure?			
c.	Are there Class IIIB or IV lasers?			
d.	Are there other sources of non-ionizing radiation?			

Copies of GSFC Form 23-6RF and Form 23-28RF must be approved by GSFC Health Physics Office (Code 205.9 x8482 or Code 205.3 x4693) prior to activation. Copies of the approved forms must be attached to this Evaluation Form.

Class IIIB or IV laser operators require an eye examination, GSFC Forms 23-35UL and 23-6L, and an operating procedure approved by GSFC Health Physics Office, Code 205.9.

Comments/additional information: _____

7. Ionizing Radiation Sources

Yes No Status

(NRC licensed sources, x-ray producing machines, particle accelerators, accelerator produced radioisotopes, or radium and its daughter products)

Are there ionizing radiation sources?

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Copies of GSFC form 23-6I must be approved by GSFC Health Physics Office, Code 205.9 prior to arrival on GSFC.

Comments/additional information: _____

8. Electrical Systems & Equipment

Yes No Status

Are there electrical systems, subsystems, or equipment?

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If no, proceed to #9.

- a. Is the equipment commercial?
- b. Is the equipment non-commercial or has the commercial equipment been modified?
- c. Is the equipment grounded?
- d. Does the equipment have exposed, live electrical components, which may be accidentally contacted by personnel?
- e. Does the equipment have adequate fuses or breakers?
- f. Are connectors keyed to prevent improper connection?

Comments/additional information: _____

9. Noise

Yes No Status

Do systems, subsystems, or equipment create noise above 80 dBA?

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Comments/additional information: _____

10. Unique/Experimental Systems

Yes No Status

- a. Is the payload sensitive to unusually high atmospheric concentrations of helium?
- b. Are there potentially hazardous systems that are not addressed by this questionnaire?

Comments/additional information: _____

11. Vacuum Compatible Materials

Yes No Status

Will a thermal vacuum test be performed on the system, subsystem, or equipment?

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If no, proceed to signature page.

- Is the system, subsystem, or equipment fabricated entirely of vacuum compatible materials with a Total Mass Loss of $\leq 1.0\%$ and Collected Volatile Condensable Material $\leq 0.1\%$?
- Is all chamber GSE (harnesses, auxiliary equipment, etc.) fabricated entirely of vacuum compatible materials with a Total Mass Loss of $\leq 1.0\%$ and Collected Volatile Condensable Material $\leq 0.1\%$?
- Are tape adhesives vacuum compatible?

Comments/additional information: _____
